MINUTES

TRI-SERVICE CADD/GIS TECHNOLOGY CENTER

ENVIRONMENTAL FIELD WORKING GROUP MEETING

April 2 - 3, 1997

Holiday Inn On the Bay & NRaD
San Diego, California

Draft for Review

Approved For Public Release; Distribution Is Unlimited

Tri-Service CADD/GIS Technology Center
Information Technology Laboratory
USAE Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

MEETING AGENDA
ENVIRONMENTAL FIELD WORKING GROUP MEETING

April 2 - 3, 1997
at
Holiday Inn on the Bay and Naval Research & Development (NRAD)
San Diego, California

Wednesday, April 2, 1997, Meeting at Holiday Inn

0830 - 0900 **Introductions and Meeting Agenda** - Bobby Carpenter

0900 - 1000 **Update on Tri-Service Center & FY97 Activities** - Bobby Carpenter

1000 - 1015 **Break**

1015 - 1045 **Brief Overview & Update on Tri-Service Center FY97 Project** - Chris Kyburg

1045 - 1145 **Review FWG Goals and Objectives (from May 1996 Meeting)** - Bobby Carpenter & Group

1145 - 1300 **Lunch**

1300 - 1430 **Nominate & Discuss Potential FY98 Environmental FWG Tri-Service CADD/GIS Projects** - Sam Bass & Group

1430 - 1445 **Break**

1445 - 1700 **Prioritize Potential FY98 Environmental FWG Tri-Service CADD/GIS Projects & Define Brief Scope for Top Three** - Sam Bass & Group

1700 **Adjourn**

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Thursday, April 3, 1997, Meeting at NRAD

0800 - 1145 **Review and Discuss Draft Environmental FWG FY97 Project** - Chris Kyburg & Group

1145 - 1300 **Lunch**

1300 - 1500 **Discuss Goals & Milestones for Completion of Environmental FWG FY97 Project (Cont.)**- Chris Kyburg & Group

1500 **Adjourn**

Future Environmental Field Working Group (FWG) Meetings

The next Tri-Service CADD/GIS Technology Center (Tri-Service Center) Environmental FWG meeting is scheduled to coincide with the Tri-Service CADD/GIS Symposium in August 1997.

Environmental FWG Attendees

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PROCEEDINGS

Introductions, Meeting Agenda, and Update on Tri-Service Center & FY97 Activities

Mr. Bobby Carpenter, Tri-Service Center, passed out copies, and briefly discussed the meeting agenda.

In addition, each person present at the meeting introduced themselves and provided a brief overview of their job and the activities in which they are involved.

Mr. Carpenter provided a brief overview of the Tri-Service Center organization, functions, and FY97 projects.

Brief Overview & Update on Tri-Service Center FY97 Project

Mr. Christopher Kyburg, NRaD, provided an overview and update on the Environmental FWG's FY 97 project proposal entitled "Interactive Demonstration/Tutorial of Environmental Geographic Information System (GIS) Technology". The project proposal was developed by the Environmental FWG during the May 1996 meeting, and expanded and refined at the June 1996 Environmental FWG meeting. A copy of the project scope is included in Appendix A.

The Naval Command, Control and Ocean Surveillance Center (NCCOSC) Research, Development, Test and Evaluation Division (NRaD), San Diego, California is performing the project development.

Review Environmental FWG Goals and Objectives

The Environmental FWG goals and objectives developed at the May 1996 Environmental FWG meeting, and provided below, were reviewed and discussed by the group.

The four broad Environmental FWG Objectives were identified are:

a. Implementation of CADD/GIS Technology for Environmental Business Practices (Implementation).

b. Evaluate and Develop Environmental Training and Installation Support (Procurement and Installation).

c. Develop Evaluation Standards for Feedback, and Provide Feedback (Evaluation).

d. Review, Identify, and Communicate with Other Environmental DoD and Non-DoD Initiatives (Initiation/Awareness). This objective was the focus of the Environmental FWG's FY96 project.

The projects/action items which have been identified under each objective are as follows:

a. *Implementation of CADD/GIS Technology for Environmental Business Practices (Implementation)* - Identified action items include: (a) Tri-Service Spatial Data Standards, domains, definitions, and transfer standards for environmental restoration and compliance; (b) environmental database or CD subscription for federal/state/local regulations, applicable or relevant and appropriate requirements (ARARs) "yellow pages", toxicity reports, etc. (make available on Tri-Service Center's internet web page); (c) groundwater modeling (includes groundwater modeling/GIS link); (d) risk representation graphic standards; (e) archiving of environmental records with link to GIS (document imaging, storage, retrieval system); (f) environmental symbols and visualization tools for GIS; (g) evaluate and recommend environmental data acquisition, data interpretation, data consolidation, remote sensing, etc. methods; (h) interface legacy programs with GIS (interoperability); (i) review and publish standard environmental restoration and compliance SQL queries (SAS SQL Query Developer); (j) acceptable treatment technologies; (k) link with EPA site technology program; (l) expert systems decision system; (m) virtual project accessible on internet.

b. *Evaluate and Develop Environmental Training and Installation Support (Procurement & Installation)* - Identified action items include: (a) Web demonstration of environmental GIS which represents the life cycle approach to environmental restoration and compliance at an installation *(FY97 Project Proposal)*; (b) evaluate and recommend CADD and GIS hardware/software, and environmental software, for environmental applications at Tri-Service installations; (c) evaluate and recommend environmental software for inclusion in NAVFAC CAD2 contract; (d) support for contracting for electronic deliverables; (e) evaluate, and develop recommendations concerning available CADD/GIS/Computer training for environmental applications; (f) develop CADD/GIS/computer training for environmental applications which is not currently available.

c. *Develop Evaluation Standards for Feedback, and Provide Feedback (Evaluation)* - Identified action items include: (a) evaluation checklist; (b) technical support group (standards, software, hardware); (c) communications (case studies, lessons learned, e-mail, POC's).

d. *Review, Identify, and Communicate with Other Environmental DoD and non-DoD Initiatives (Initiation/Awareness)* - Identified action items include: (a) identify other agency environmental initiatives which are similar *(FY 96 project focus)*; (b) review and input from non-DoD organizations; (c) Upkeep of Environmental FWG's internet web page (including Initiatives database).

Additional potential projects/action items which were discussed include:

a. Tri-Service Environmental Data Transfer Standards.

b. Ecosystem-Risk Data & Modeling.

c. RAAS Interface (Remedial Action & Assessment System). The Air Force has been working on a model selection (Expert System) project through Brown University.

d. Develop Feedback Page on the Tri-Service Center's Internet Web Site.

e. Environmental Administrative Records Electronic Document Management System.

f. Incorporate drinking water/watershed protection and pollution prevention spatial standards into TSSDS. This includes wellhead protection, surface water protection, etc.

Nominate, Discuss, Prioritize Potential FY98 Environmental FWG Tri-Service CADD/GIS Projects

Mr. Sam Bass, CENWO-HX-G, the Environmental FWG FY97 Chairman led the discussion. The following two projects were selected to recommend as FY98 Environmental FWG Tri-Service CADD/GIS Projects:

1. Interactive Demonstration/Tutorial of Environmental Restoration/Compliance (ER/EC) Geographic Information System (GIS) Technology (Continuation of Tri-Service Project No. 97.022 from FY97). A brief scope of this project is included in Appendix _____.

a. Component 1 - Demonstrate used of TSSDS in development of an ER/EC GIS (FY97).

b. Component 2 - Provide actual case studies (approximately 4) demonstrating interrelation between ER/EC GIS and other interdisplinary GIS applications (e.g., facility management) (FY98).

(1) Show sample different interdisplinary GIS coverages (e.g., utilities).

(2) Provide "success" stories where coordination of ER/EC GIS and other interdisplinary GIS coverages (i.e., different Entity Sets) resulted in costs savings, etc. (e.g., avoiding an IRP site for MILCON). The format for each success story will include site pictures (screen shots); ER/EC GIS coverage/interdisplinary GIS coverage; narrative of problem resolution with cost savings; and optional Point-of-Contact (POC) (with chain-of-command).

c. Component 3 - ER/EC GIS Development.

(1) "Decision Tree" approach to development of an ER/EC GIS - Address steps you go through to develop an ER/EC GIS (e.g., needs assessment/analysis, systems analysis, data hunt/development, construction of ER/EC GIS, training and maintenance). Discuss levels of accuracy required for specific ER/EC GIS applications (e.g., BRAC, IRP, FUDS, etc.). Include recommended training courses, staffing, etc. issues.

(2) ER/EC GIS Development Case Studies - Provide "success" stories and actual case studies for various specific ER/EC GIS developments (e.g., BRAC sites, IRP sites, small versus large installations/sites).

d. Component 4 - Identify existing data sources (primarily graphics) for development of an ER/EC GIS.

2. Environmental Electronic Administration Record File as Required by CERCLA Originating Office. A brief scope of this project proposal is included in Appendix _____.

Review and Discuss Draft Environmental FWG FY97 Project

Mr. Kyburg demonstrated the draft Environmental GIS Tutorial using the Internet browser Netscape (Internet address: http://thadium.nosc.mil/tssds/). Pearl, a "free" Internet programming software application, was used to extract the selected information from the Tri-Service Spatial Data Standards (TSSDS) Microsoft Access database. Pearl was selected because it can be freely used and distributed. The project scope required that (1) no proprietary software, data, or graphics be used, and (2) the product had to be compatible with the most commonly used Internet web browser software (Netscape, Microsoft Internet Explorer, and possibly Mosaic). "Front Page" software was the html editor software used. The group offered several comments and suggestions for incorporation into the final product. The final product would be placed on the Tri-Service Center's Internet Web Site, and available on CD-ROM (possibly along with the next release of the TSSDS).

Discuss Goals & Milestones for Completion of Environmental FWG FY97 Project

The following items should be furnished to Mr. Kyburg, NRaD, by the end of April 1997. The Interactive Environmental GIS Tutorial would be completed in time to present at the August 1997 Tri-Service CADD/GIS Symposium.

a. Screen shots of a GIS, installation map, etc. for inclusion in the "Lessons Learned"/ "Benefits" category of the GIS Tutorial (All Meeting Attendees).

b. Sample electronic data in the TSSDS format (All Meeting Attendees).

c. Examples of benefits for using GIS technology in Environmental Restoration/Compliance activities (All Meeting Attendees).

d. Data dictionary for the TSSDS database (Mr. Carpenter).

Appendix A

Environmental FWG's Proposed FY97 Project

Interactive Demonstration/Tutorial of Environmental Geographic Information System (GIS) Technology

Statement of Work
for
Tri-Service CADD/GIS Technology Center

FY97 Project No. 22

Interactive Demonstration/Tutorial of Environmental Geographic Information System (GIS) Technology

1.0 GENERAL

There is a requirement to develop an interactive Tri-Service tutorial for Environmental Geographical Information Systems (GIS). The tutorial *will* apply the Tri-Service Spatial Data Standards (TSSDS) and Symbols to environmental medias in a GIS. It will also integrate the use of the TSSDS in the life cycle approach for accomplishing environmental restoration and compliance activities. The tool will be able to fulfill many training and demonstration needs to the Tri-Services.

An interactive on-line demonstration/tutorial will greatly enhance understanding the use of standards for Environmental Restoration and Compliance. This project will create such a system using public domain World Wide Web (WWW) technology. The TSSDS provides an extensive graphic (symbology) and nongraphic (database) schema which will serve as a standard format for the use of Computer-Aided Drafting and Design (CADD) and GIS technology in accomplishing various Tri-Service projects.

The objective of the project is to provide an on-line training and demonstration tool to help the Tri-Services understand the application of the TSSDS and Symbols to Environmental Engineering available at no cost. The tool would also be installed on a laptop computer for demonstration purposes at conferences, meetings, and training sessions. The tool will be installed on the Tri-Service CADD/GIS Technology Center's Environmental FWG's Internet web page, as well as provided on a floppy disk/CD for distribution. The tool will also be installable on a laptop computer for demonstration purposes at conferences, meetings, and training sessions. The tool will provide the following minimum capabilities: (1) an overview of the life-cycle approach to environmental restoration and compliance; (2) an overview of GIS technology and benefits in the field of environmental engineering; (3) an overview of the TSSDS with guidance on how to implement the TSSDS to accomplish environmental restoration and compliance activities; (4) interactive maps (small scale and large scale maps accessible through the Internet and transportable on a laptop computer) which demonstrate the use of the environmental graphic (symbology) and nongraphic (database) standards contained in the TSSDS; (5) sample queries; and (6) an overview of data acquisition, conversion, and formatting methods and procedures. Create interactive maps which demonstrate the standards at

various map scales and categories of environmental restoration and compliance. The maps would represent the symbols and standards used for the various media (air, water, UST etc.). Each symbol when selected will provide example data and additional buttons which will offer insight, an example query, database schema, benefits of GIS, etc., associated with the graphical entity.

2.0 BACKGROUND

In August of 1995, the Tri-Service CADD/GIS Technology Center (Tri-Service Center) published Release 1.4 the TSSDS in electronic format. Release 1.6 of the TSSDS was published in November 1996. Development of the Tri-Service Facility Management Standards (TSFMS) is scheduled to begin in Fiscal Year 1996. The TSFMS will be designed to integrate with the TSSDS, and will address the more detailed analysis and business process considerations.

3.0 DESCRIPTION OF WORK TO BE PERFORMED

1. The intended audience will be:
   - General Interest.
   - Management Overview
   - Technical Reference
   - Tutorial.
   - RAB/Public Education.
   - Contractor Support.

2. A small scale digital map (e.g., USGS, state, etc.) and a large scale digital map (e.g., installation base map) will be used. The digital maps will probably be in a GIF digital format.. The basic areas of interest on the base map will include one landfill, one lake, roads, perimeter fence, one airstrip, and buildings.

3. The introductory screen will be subdivided into the following three general areas:
   - General Information.
   - Management Type Information.
   - Technical Information.

4. Items to be addressed in the introductory screens will include at least those listed below. The Tri-Service Center (including the Tri-Service Center's Environmental Field Working Group) will provide the basic information to be included under a - d. Additional information may also be provided. Release 1.6 of the TSSDS shall be used for the development of e -g.

   a. What is GIS technology?

b. Why use GIS for Environmental Restoration and Compliance activities? Cost benefits, make better decisions, etc.

c. What are the Tri-Service Spatial Data Standards (TSSDS)? Use the TSSDS, Release 1.6.

d. Why do we need GIS standards?

e. Provide Overview and Demonstrate the use of the Environmental Symbols.

f. Discuss Format and Organization of the TSSDS. Capability will be provided to select a category which will lead through a hypertext link to another screen providing more detailed information.
   (1) Entity Sets.
   (2) Entity Classes.
   (3) Entities (Entity Types).
   (4) Attribute Tables.
   (5) Domain Tables.
   (6) Join Relationships.

g. At least the following Entities, with associated Attribute and Domain Tables, should be covered. The Attribute and Domain Tables will be accessed by selecting the entity from the map. When an Entity feature is selected from the map a hypertext link will lead to another screen providing a description/definition of that entity and a button which when selected retrieves the Attribute Table for the Entity.
   (1) DoD Installation Restoration Program (IRP) Site.
   (2) Area of Potential Concern.
   (3) Soil Sample Collection Location.
   (4) Air Sample Collection Location.
   (5) Monitoring Well.
   (6) Contained Hazardous Materiel Storage Area.
   (7) Contained PCB's.
   (8) Landfill Cell.
   (9) Solid Waste Landfill.
   (10) Temporary Stockpile Area.
   (11) Excavation Area.
   (12) Hazardous Waste Remediation Incinerator.
   (13) Building with Environmental Hazards.
   (14) Spill Containment Feature.
   (15) Spill Response Staging Area.
   (16) Equipment Decontamination Pad.
   (17) Exclusion Zone.
   (18) Staging Area.
   (19) Air Pollution Isoline.
   (20) Air Emission Source Point.

(21) Soil Pollution Isoline.
(22) Soil Pollution Plume.
(23) Groundwater Pollution Isoline.
(24) Groundwater Pollution Plume.
(25) Sediment Pollution Isoline.
(26) Sediment Pollution Plume.
(27) Spill Release Point.
(28) Nonpoint Source Pollution Area.
(29) Regulated Underground Storage Tank.
(30) Regulated Aboveground Storage Tank.

h. Examples of Plumes, sample Queries, and Animation can also be provided.

5. Project requirements consist of the following:

a. The product shall be provided to the Tri-Service Center on a self-contained CD-ROM (i.e., with no external links). Any software provided on the CD-ROM shall be non-proprietary. An installation program can be provided, if required. The product shall be compatible with the Internet Web Browsers most commonly used (e.g., Mosaic, Netscape, and Internet Explorer).

b. When complete, the product will be installed on one of the Tri-Service Center's Internet servers. Mr. Egan, Tri-Service Center, shall be contacted concerning any additional requirements. The product should also be suitable for installation on a personal computer or laptop. "Reasonable" access speed on Internet should be a consideration (i.e., avoid large GIF files, if possible).

c. The product shall demonstrate implementation of Release 1.6 of the TSSDS for Environmental Restoration and Compliance.

d. Provide milestone deliverables in electronic format to Tri-Service Center, or accessible via the Internet.

e. Milestones shall be as follows:
(1) Milestone 1.0 - Develop "Empty" GIF of large scale map (i.e., base map) and small scale map (i.e., USGS Quad Map). Identify browser/viewer(s).
(2) Milestone 1.1 - Develop screen shots: Highest level through Entity screens for one Entity Set.
(3) Milestone 1.2 - Make above items fully functional for one Entity.
(4) Milestone 1.3 - Develop screen shots for identified Entities/Entity Classes.
(5) Milestone 2.0 - Make all Entity screen shots fully functional.
(6) Milestone 2.1 - Complete Environmental and other Identification Entities.
(7) Milestone 2.2 - Provide final fully functional product on CD-ROM.
(8) Milestone 3.0 - Provide draft user manual of product for review.

(9) Milestone 3.1 - Provide final user manual of product.

4.0 REQUIREMENTS

4.1 Contractor Furnished Items:

4.1.1 The Contractor (i.e., NRAD) shall furnish all labor, materials, and as required in conjunction with the services to be provided.

4.2 Tri-Service Center Furnished Items:

4.2.1 TSSDS, Release 1.6 on CD-ROM.

4.2.2 Mr. Bobby Carpenter, Tri-Service Center, (phone 601-634-4572 & E-mail address: carpenb@ex1.wes.army.mil), will be the Point-of-Contact (POC) for this project.

Tri-Service CADD/GIS Technology Center
USAE Waterways Experiment Station
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4.2.3 Funding for the project will be provided in two installments (one for each milestone).

4.3 Contract Deliverables: The following schedule is to be followed after notice to proceed:

ITEM	SUBMITTAL DATE
Notice to Proceed (NTP)	Start
Complete Milestone 1.0 -	Within 120 working days of NTP
Review and incorporate comments of Milestone 1.0 -	Within 130 working days of NTP
Complete Milestone 2.0 -	Within 160 working days of NTP
Review and incorporate comments of Milestone 2.0 -	Within 170 working days of NTP
Complete Milestone 3.0 -	Within 200 working days of NTP
Review and incorporate comments of Milestone 3.0 -	Within 210 working days of NTP

Appendix B

Environmental FWG
Proposed FY98 Project

Interactive Demonstration/Tutorial of Environmental GIS Technology - Phase 2

FUNCTION:

STRATEGY:

PROJECT #: 97.022

TITLE: Interactive Demonstration/Tutorial of Environmental Geographic Information System (GIS) Technology (Continued)

1. **Originating Office:**

Tri-Service CADD/GIS Technology Center Environmental Field Working Group (Mr. Sam Bass)

2. **Requirement:** Within the Army, Navy, and Air Force there is a general lack of understanding in the field of how to implement a GIS and the Tri-Service Spatial Data Standards (TSSDS) for environmental compliance and environmental restoration activities. Project Number 97.022, Interactive Demonstration/Tutorial of Environmental GIS Technology, partially addresses this need by providing examples of the application of the TSSDS to environmental restoration/compliance projects. The proposed project is a logical extension of Project Number 97.022, providing case studies of the application of environmental GIS to installation business processes (e.g., environmental compliance, facility management). This project will also provide guidelines and case studies of environmental GIS development and maintenance, including the identification of graphical-data sources.

3. **Justification/Benefits**: The identification of various elements required for successful development and application of an interdisciplinary GIS, and further demonstration of the application of the TSSDS, will result in significant cost savings for installations and other users building GIS systems and applications.

The environmental web site visitor/customer, in phase one, has recognized the need for the GIS system for environmental planning, design and construction. A tutorial is now required to instruct the visitor/customer on how to initiate the development of a GIS system and to identify sources of existing GIS graphic data on the federal, state and local level.

4. **Objectives:** Enhance and expand FY97 Project 97.022.

5. **Approach:**

6. **Cost:**

7. **Product:** An interactive web site and floppy disk/CD ROM will be developed for each product.

8. **Customers:** Facilities management, planning, environmental management, contracting, and environmental remediation personnel.

9. **Remarks:** This project is an extension of FY97 Project 97.022.

Appendix C

Environmental Electronic Administration Record File as Required by CERCLA

Project Title: ***Environmental Electronic Administration Record File as Required by CERCLA***

Originating Office:
USAE Waterways Experiment Station, ATTN: Tri-Service CADD/GIS Technology Center (Mr. Bobby Carpenter), 3909 Halls Ferry Road, Vicksburg, MS 39180; (601) 634-4584.
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Army Proponent - Ray Consoli (703) 355-0082
Corps Proponent - Justin Taylor (202) 761-0211
Navy Proponent - Robert Carlsen (703) 325-8532, Deke Smith (703) 325-0450
Center POC - Bobby Carpenter (601) 634-4572
FWG Proponent - Steven C. Gonzales (703) 325-0356

Requirement: Provide CD-ROMs for the Environmental Administration Record File. The Department of Defense (DOD) cleanup program began with the passage of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Congress passed the Superfund Amendments and Reauthorization Act (SARA) in 1986 which brought all federal facilities under the umbrella of CERCLA. Section 113K of the CERCLA as amended by SARA requires the establishment of an administration record. The administration record is a legal document that tracks all environmental studies and solutions.

Justification/Benefits: The DOD Activities and Regional Libraries are required to maintain thousands of pages of legal environmental documents. Providing CD-ROMs would significantly reduce the amount of resources required to maintain these documents. DOD activities and public libraries would not be burdened with the selves of documents they are responsible for by CERCLA. The electronic administration record will serve two purposes. First, it provides access to site-specific information so that the public may make informed comments to DOD activities on the selection of response actions, second, if the adequacy of a response decision is challenged in court, the judicial review of that decision may be largely based on the documents in the administration record.

Objectives: Publish an Environmental Electronic Administration Record Guidance Document DOD wide.

Approach: Use the NAVY's published guidance as a beginning. Survey and document ACOE and Air Force procedures for creating an electronic environmental administration record. Compare the procedures and publish a DOD guidance document.

Estimated Cost:
Task 1: Survey and Review DOD activities for electronic administration record projects: 25K
Task 2: Sponsor Environmental FWG mtg to discuss results and make recommendations: 15K
Task 3: Incorporate comments from DOD activities: 10K
Task 4: Publish DOD guidance on Environmental Electronic Administration Record: 25K
Total - 75K

Product: Environmental Electronic Administration Record on CD-ROM Guidance and Standards.

Customers: Environmental Remedial Project Managers throughout DOD.

Remarks: The Army POC is Mark Bovelsky, AEC , Chief of Information Department, (410) 671-1650. USAF bases are just now putting Administration Record onto CD ROM. The USAF will have two systems, one for the library/repository and one for the USAF bases/HQ.

Project Functional Categories: Standards, Environmental Electronic Document Management.